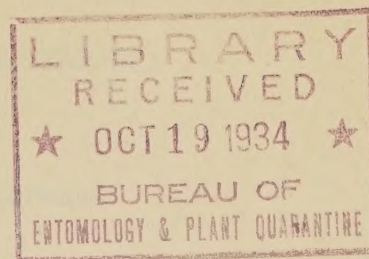


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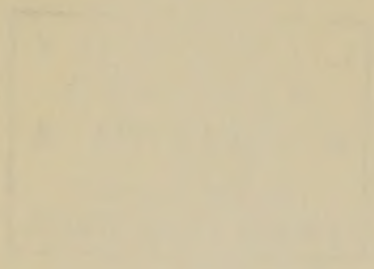
UNITED STATES
DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

PROCEEDINGS OF GRASSHOPPER CONTROL CONFERENCE

August 31, 1934.

(Denver, Colorado)



UNITED STATES
DEPARTMENT OF AGRICULTURE

OFFICE OF THE SECRETARY

WASHINGTON, D. C.

April 21, 1904

(Seal, etc.)

PROCEEDINGS OF GRASSHOPPER CONTROL CONFERENCE

August 31, 1934.

(Shirley-Savoy Hotel, Denver, Colorado)

This conference was called by the Bureau of Entomology and Plant Quarantine, United States Department of Agriculture, for the purpose of discussing the results of the grasshopper control campaign, to organize a survey for the coming fall, to obtain criticisms and suggestions on the campaign just conducted, and to perfect plans for the proper storage and handling of surplus bait. The following states were represented: Arizona, California, Colorado, Idaho, Iowa, Kansas, Michigan, Minnesota, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Wisconsin, and Wyoming.

The meeting was called to order at 9:30 a.m. by Dr. P. N. Annand.

Mr. S. A. Rohwer reviewed the purpose of the conference, to wit: To review the work on grasshopper control that had been done by states in cooperation with the Federal Government and to get constructive or destructive criticisms as to methods used. He also reviewed the purpose of the campaign and spoke of the cooperation of the Federal Government with the states. Mr. Rohwer also asked for reports on the amount of bait that is still available so that it might be made a matter of record, and suggested that the states take the responsibility of storing this bait--the Federal Government reserving the right to redistribute the bait to other states where needed in case it was not needed in the state to which it had been originally allotted and was in storage as surplus to its need.

Dr. J. R. Parker spoke of his part in the campaign, of his contact with the state leaders, and of the excellent cooperation he had received during this campaign.

Mr. B. M. Gaddis spoke briefly on the work of bait distribution and the assembling of ingredients and mixing.

At this time Mr. F. D. Butcher, of North Dakota, requested recognition to present for the information of the conference a set of resolutions prepared and adopted by a separate meeting of state workers previous to the opening of the conference. These were as follows:

This group wishes to express formally its sincere appreciation of the efficient and highly satisfactory manner in which the distribution of grasshopper bait and bait materials was conducted by the Grasshopper Control Office in Minneapolis.

It is the opinion of this group that adequate annual grasshopper surveys, including both adult and egg surveys, are necessary in order

to prepare for effective control work. This group believes that this necessary survey work can be done most successfully by the Bureau of Entomology and Plant Quarantine in cooperation with state entomological forces. It is further urged and suggested that the Bureau of Entomology and Plant Quarantine request funds to carry on the project.

This group recommends that the Bureau of Entomology and Plant Quarantine request funds sufficient to continue grasshopper control activities next year, the amount of such funds to be determined by results of surveys to be made this fall.

Members of this conference extend their thanks for the activities of the Committee of the Fargo Conference, and particularly of the Northwest Crop Improvement Association, Greater North Dakota Association, and railroads serving the grasshopper infested area, in securing the appropriation for grasshopper control from Congress in 1934.

These resolutions were signed and approved by the following state men:

E. D. Ball, Prof. Econ. Zoology, Tucson, Ariz.
Ray Hutson, Prof. of Entomology, Michigan State College, E. Lansing, Mich.
E. L. Chambers, State Dept. of Agriculture & Markets, Madison, Wis.
Kenneth W. Shanks, Assistant State Leader, Ft. Collins, Colo.
Sam C. McCampbell, State Leader, Ft. Collins, Colo.
A. L. Ford, Extension Entomologist, Brookings, S. Dak.
T. L. Aamodt, Assistant Entomologist, University Farm, St. Paul, Minn.
Geo. C. Decker, Research Assistant, Iowa State College, Ames, Iowa
Chas. R. Jones, Prof. of Entomology, Ft. Collins, Colo.
W. E. Shull, Asst. Entomologist, University of Idaho, Moscow, Idaho
O. S. Bare, Extension Entomologist, University of Nebraska, Lincoln, Nebr.
A. G. Ruggles, State Entomologist, University Farm, St. Paul, Minn.
W. W. Henderson, Entomologist, Utah Experiment Station, Logan, Utah
H. C. Stewart, Ext. Hort., State College, N. Mex.
C. L. Corkins, State Entomologist, Wyo. Dept. of Agriculture, Powell, Wyo.
E. G. Kelly, Extension Entomologist, Manhattan, Kansas
F. D. Butcher, Extension Entomologist, State College Station, Fargo, N. Dak.
Geo. G. Schweis, Director of Bureau of Plant Industry, Reno, Nev.

Doctor Annand presented a brief review of the federal activity in connection with the campaign and distributed a mimeographed summary of the cooperative grasshopper control campaign in which was outlined the federal and state organizations, the methods of purchase of materials and production of bait, the distribution of bait, and the results of the campaign as summarized from preliminary state reports.

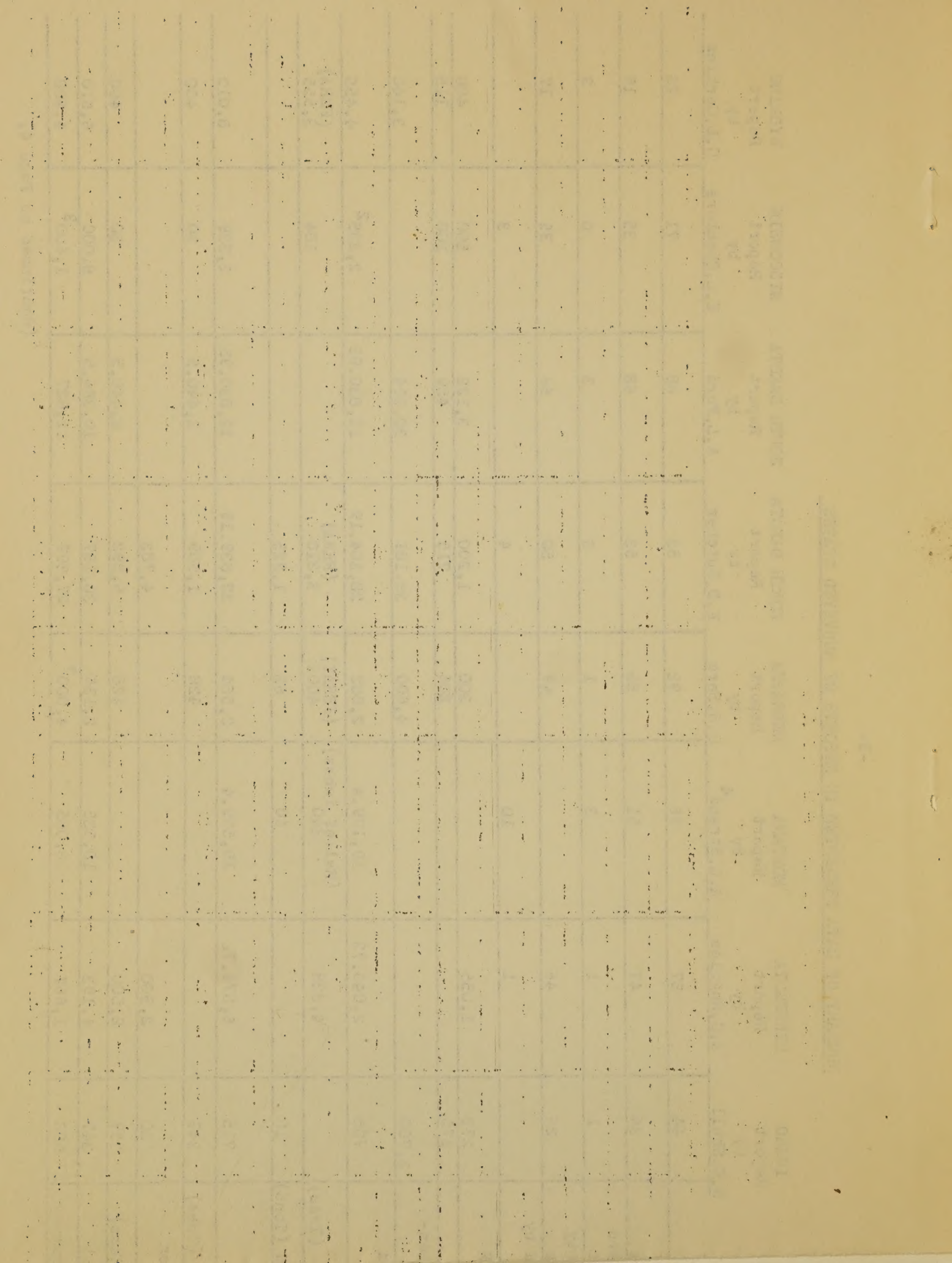
The reports from the various states were then presented.

The reports of the surveyed states are summarized in the table given on Pages 3 and 4. It should be borne in mind that the information here presented is of a preliminary nature as most of the states had not yet had an opportunity to complete a summary of the control activity or to obtain complete records.

SUMMARY OF DATA PRESENTED IN REPORTS OF SURVEYED STATES

	IDAHO Report by W.E.Shull	MINNESOTA Report by A.G.Ruggles	MONTANA Report by A.L.Strand ⁴	NEBRASKA Report by O.S.Bare	NORTH DAKOTA Report by F.D.Butcher	SOUTH DAKOTA Report by A.L.Ford	WISCONSIN Report by E.L.Chambers	WYOMING Report by C.L.Corkins
Counties in state	44	87	56	93	53	68	71	23
Counties engaged in grasshopper control	34	47	51	55	53	68	35	19
Assistant State Leaders paid by Fed'l Gov't	1	1	3	1	3	3	0	3
County Leaders - County Agricultural Agents	26	46		49	50	63	35	17
County Leaders - paid by Government		1	10		4		3	
Township or Community Leaders	272	1,055		300	1,200	3,122	500	400
Meetings held	275			206	715	459	200	115
Approximate total atten- dance at meetings	3,700			4,600	38,181	30,314		3,140
Federal bait received (Tons) ¹	705	2,046.72	19,109.4	2,082	28,304.19	12,830.95	2,235 ²	4,455
State bait purchased (Tons)		4,828	(Relief funds) 340	(FERA?) 400?	(FERA) 3,210		104	(FERA) 3,555
County bait purchased (Tons)	10		60	82	1,325			
Total bait available (Tons) ²	715	6,874.72	19,509.4	2,564	32,839.19	12,830.95	2,339	8,010
Federal bait on hand (Tons)	349			428	1,509	2,440.5	30	400
State & County bait on hand (Tons)	10	2,500			4,783			
Total bait on hand (Tons)	359	2,500		428	6,292	2,440.5	30	400
Total bait used (Tons)	347	4,193	18,535	2,136	30,557	10,386.5	8,000	6,610
Bait estimated 1933 survey	600	1,667	18,065	4,000 ³	27,397	12,827	1,600 ³	4,200

(Continued on Page 4)



SUMMARY OF DATA PRESENTED IN REPORTS OF SURVEYED STATES (Cont'd from Page 3)

	IDAHO Report by W.E.Shull	MINNESOTA Report by A.G.Ruggles	MONTANA Report by A.L.Strand ⁴	NEBRASKA Report by O.S.Bare	NORTH DAKOTA Report by F.D.Butcher	SOUTH DAKOTA Report by A.L.Ford	WISCONSIN Report by E.L.Chambers	WYOMING Report by C.L.Corkins
Acres poisoned	70,073		2,471,000	425,456		1,705,601	600,000	
Acres protected	259,805					3,204,237		
Farmers using bait	1,787	72,000		13,860 ¹		33,058		5,730
Mechanical spreaders used	1	300 ¹	Large number		100			Very few
Crop damage	Light	Very light		Moderate	Light		Light	Very light
Probable damage without bait	Moderate	Very severe		Very severe	Very severe	Not available	Over \$2,000,000	
County funds for other than bait	\$791	\$1,000			\$113,389	\$6,044.49	\$30,000	\$12,350
Relief funds for other purposes than bait	\$3,500	\$3,000						\$131,721.10
Cases of arsenical poisoning of -								
Man	0	0	0	4 (very slight)	45	1	1	100 (None severe)
Livestock	5	2	15	4	109	31	50	50
Poultry	0	25	4	3	23	Numerous claims	Few	None reported
Game & Song Birds	0	C	0	2	0	0	No record	0

¹Corrected to agree with final records on basis of total bait -- raw materials being expressed in bait equivalent.

²Corrected to agree with final records of federal shipments.

³Estimate not based on survey. No survey comparable with other states made in 1933.

⁴Presented by J. R. Parker.

Mr. E. L. Chambers, of Wisconsin, reported the use of whey with sawdust mixture, in which sawdust, whey, and crude white arsenic or sodium arsenite were used, indicating that the results were fairly comparable with those obtained with other formulas, although apparently the whey was not quite so good as molasses in attractiveness but better than water alone.

A general review of the areas involved in each state was presented.

The reports for the unsurveyed states were then presented and are briefly summarized below:

ARIZONA
(E. D. Ball)

Doctor Ball reported no figures were available at this time but that remarkable success was obtained in the campaign. No federal aid was asked for until county aid was exhausted. An egg bed survey is now under way. A spring survey is contemplated. Present indications are that the eggs laid will be reduced by more than 50% by spring. Doctor Ball also discussed the relative merits of the baiting campaign and control by cultural means.

Federal bait received (in terms of mixed bait equivalent). . . 370.75 Tons

CALIFORNIA
(The report for California was prepared by the State Leader but in his absence was presented by C. C. Wilson, of the Bureau of Entomology and Plant Quarantine, U. S. Dept. of Agriculture.)

California received the equivalent of 645 tons of mixed bait in the form of bran and sodium arsenite. Sodium arsenite was used in general at the rate of 1 quart to 100 pounds of bran with satisfactory results and without the use of molasses or other attractant materials. Bait was shipped to 16 counties in the State, six of these being in the northwestern and north-central portions of the State, one to San Joaquin County in the San Joaquin Valley, and the rest being in the southern portion of the State. Over most of the State, the damage occurred primarily to range land but beans, grain fields, and cereal hay crops as well as alfalfa suffered. In San Luis Obispo County, only 500 acres of beans were left. Even sugar beets were eaten. In some sections along the south coast apricots were pitted and the trees partially defoliated. A considerably greater loss of this crop would have occurred if grazing lands in the hills had not been poisoned. Young grapefruit trees were partially defoliated and terminal buds destroyed. Because of the inaccessibility of the area where most of the clear-winged grasshoppers occurred, California was slow in appreciating the necessity for more than normal control. No federal aid was asked for until all county funds available were exhausted. As it turned out, this was a mistake for there was a considerable lapse of time before the federal supplies could be received after local materials and money were exhausted. Two species were largely responsible for the damage: Damage from Camnula pellucida to range land and grain crops was widely scattered from the Mexican border to the Oregon line. Damage from the lesser migratory grasshopper was largely restricted to crops in the Imperial and

Antelope Valleys. Over most of the area infested by C. pellucida, the short-winged form of the valley grasshopper (Oedoleonotus enigma) was responsible for localized but severe losses. Other species were involved to a lesser degree. It is believed that more information is needed on natural checks on the grasshoppers, and that additional research should be carried forward to determine the conditions responsible for starting outbreaks as an aid in reducing crop loss and the cost of control during outbreaks.

COLORADO
(S. C. McCampbell)

Counties in State	63
Counties engaged in grasshopper control	40
Assistant state leaders paid by Bureau of Entomology	1
County leaders - county agricultural agents	39
Meetings held	280
Approximate total attendance at meetings.	5,000
Federal bait received	1,800 Tons
State bait purchased.	None
County bait purchased	100 Tons
Federal bait now on hand.	Bet'n 400 & 500 Tons (Some of which will still be used this yr.)
Total bait used	Approximately 1,400 Tons
Acreage poisoned.	100 to 200 thousand
Crop damage	Rather light
Probable crop damage without bait	Severe
Cases of arsenical poisoning to man	None
" " " " " livestock	10
" " " " " poultry	No report
" " " " " game & song birds	No report

IOWA
(G. C. Decker)

Infestation in State was light and no survey was made. The infestation was confined to a small area, including about 5 counties.

Federal bait received	200.48 Tons
State bait purchased.	58 "
Federal bait now on hand.	None
State bait on hand (still using).	10 Tons
Acreage poisoned (approximately).	34,000
No cultural control methods used.	
Scattered bait mostly by hand.	
No complaints from poisoning to man, poultry, or birds.	
Cases of arsenical poisoning of livestock	9

KANSAS
(E. G. Kelly)

Total allotment to Kansas in terms of mixed bait equivalent. . . 537.5 Tons
(this being shipped as wheat bran and white arsenic).

The counties bought the molasses required to mix molasses bait and used in general the Kansas formula. The insect control committees of each township or community totaled 111 members. These committees working with the County Agricultural Agents took charge of demonstrations and arranged for distribution of the bait to the various communities. Information is not available as to the amount of bait purchased by counties. One hundred fifty thousand to two hundred thousand acres were treated. Reports of 34 counties indicated that farmers protected 2,370,000 acres of various crops. Relief workers were used by some counties to mix the bran and arsenic and to put molasses into gallon jugs. Many farmers bought lemons or oranges for their bait; it is believed that such bait was materially improved over that made with arsenic, bran, molasses, and water. No cases of arsenical poisoning to man, livestock, poultry, game or song birds were reported. It is estimated by the county agents that the mash applied saved crops valued at \$1,021,450. According to their estimate, 1 lb. of arsenic and 20 lbs. of wheat bran saved crops valued at \$37.00. There will be considerable damage to fall-sown wheat in counties which did not receive sufficient materials to effect a clean-up.

MICHIGAN
(Ray Hutson)

Twenty-nine regular county agents were employed in actually directing the campaign. No county or assistant state leaders were appointed on federal funds. There were approximately 225 community leaders with bait distribution to 36 counties. Two hundred educational meetings were held in the State. No State purchased bait was used. County funds were used for providing storage places, for hauling, office help, and travel by county agents. The campaign was considered successful although no definite information is available as to the number of acres saved or the value of the crop saved by the poisoning campaign. No cases of serious poisoning to man occurred and no cases of poisoning to birds or livestock were reported.

NEVADA
(Geo. G. Schweis)

An educational campaign by county agents, including field demonstrations, etc., was conducted. Investigations were made in all cases for request for poison bait, refusal being made where heavy infestations did not occur.

157 1/2 Tons of bait was used in 11 counties.

Acres poisoned	31,335
Acres protected.	63,500
Arsenical poisoning to man	None
Arsenical poisoning of livestock	No authentic cases reported, where bait properly used.

THEORY

The first part of the theory is the definition of the function $f(x)$ and the function $F(x)$. The function $f(x)$ is defined as the function which is continuous at x and has the property that $f(x) = \lim_{t \rightarrow x} f(t)$. The function $F(x)$ is defined as the function which is continuous at x and has the property that $F(x) = \lim_{t \rightarrow x} F(t)$.

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PROOF

The first part of the proof is the definition of the function $f(x)$ and the function $F(x)$. The function $f(x)$ is defined as the function which is continuous at x and has the property that $f(x) = \lim_{t \rightarrow x} f(t)$. The function $F(x)$ is defined as the function which is continuous at x and has the property that $F(x) = \lim_{t \rightarrow x} F(t)$.

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Mr. Schweis reported the main difficulties encountered in this campaign were getting transportation from terminal points, long distances, lack of interest on the part of some individuals, lack of sufficient personnel, and condition of the roads. Mr. Schweis expressed the opinion that campaigns of this nature should be organized more rapidly, more personnel should be made available to state leaders, and that materials should be made available at an early date.

NEW MEXICO
(H. C. Stewart)

Counties in State	31
Counties engaged in grasshopper control	11
Very little educational work done.	
Federal bait received	569 Tons
Federal bait now on hand (part will still be used).	140 "
Acreage poisoned	84,692
Acreage protected	183,000
Farmers using bait.	325

OREGON

(The report for Oregon was prepared by the State Leader but in his absence was presented by L. P. Rockwood, of the Bureau of Entomology and Plant Quarantine, U. S. Dept. of Agriculture.)

Federal bait received	350 Tons
Community leaders	46
Educational program little needed.	
Federal bait used	295 Tons
Federal bait now on hand (approximately).	55 "
Bait estimated for this fall.	550 "
No bait purchased by State, but county and other groups furnished some bait materials (about 105 tons).	
Total bait used	400 "
Farmers using bait.	600
Acreage poisoned.	100,000
Acres protected	580,000
Only one county in which relief workers were used.	
Value of crop saved (approximately)	\$2,000,000

UTAH
(W. W. Henderson)

Organized State Committee consisted of 4 men.

Federal bait received.	300 Tons
Federal bait now on hand	Small amount
Counties in State.	29
Counties engaged in grasshopper control	8
Report on percentage of kill.	75% to 100%

Meeting adjourned until 2:15 p.m.

All states reported satisfactory control in poisoning campaign.

The afternoon session was thrown open for criticisms and suggestions by states. Comments were made as follows:

IDAHO - The suggestion was made by Doctor Shull that it would have been possible to obtain more bait with less expenditure of money if a mixing station had been near them. Mr. Gaddis made the suggestion that if raw materials had to be shipped to the State, the freight cost would be very similar.

Note:- It may be of interest to call attention to the fact that the amounts indicated on freight bills which were sometimes presented to the State Leaders previous to the receipt of the Government Bill of Lading gave an entirely erroneous idea as to the cost of transporting the bait materials. The rates presented on the waybills were usually insecticide rates whereas as a matter of fact the Federal Government was permitted to ship the bait under the bran rate, which was about half of the insecticide rate, and was given 50% of the commercial rate on bran. This means that the actual cost for shipping the materials was approximately one-fourth of that indicated by local agents in presenting bills for freight to county agents or state leaders previous to the receipt of the Government lading.

MONTANA - Doctor Strand sent a discussion of the Montana campaign which was presented by Doctor Parker. The suggestions were made that an assistant county agent or special agent would be advisable to assist the county agents, as they were too busy to give the supervision necessary, and that stricter supervision was needed at mixing plants. It was further suggested that no baits should be stored in small towns and stations in advance of need but should be sent to division points and diverted from there as needed and no faster.

NEBRASKA - Mr. Bare reported that the sawdust proved satisfactory with the exception of two carloads which were of poor quality, and suggested that closer supervision be given at mixing plant. Mr. Gaddis explained that these two carloads were shipped out before they had made adjustments at the mixing mills. Mr. Bare also suggested the need of assistant personnel as the county agents did not have the time required.

NORTH DAKOTA - The suggestions were made by Mr. Butcher that more instruction be given to foremen at mixing stations, that training schools were needed, and that more educational meetings should be held with demonstrations as to mixing and scattering of the bait.

SOUTH DAKOTA - Mr. Ford suggested that the figures on amount of bait coming into the states should not be made public, and that too much bait was put into counties at one time.

WISCONSIN - Mr. Chambers stated that Wisconsin would like to receive bait on the same basis as in the 1934 campaign - allotment half ready-mixed and the rest with sodium arsenite.

WYOMING - Mr. Corkins remarked that the plans as carried out this year were entirely satisfactory and that he had no particular comment to make on the formula used. He suggested that more adequate personnel was needed within the counties.

ARIZONA - Doctor Ball suggested that the campaign be organized so that the highway trucks could distribute the poison and that the farmer receive only the poison that he could use during the period between distributions.

COLORADO - Mr. McCampbell spoke of the trouble along the foothill region adjoining the forest reserve and was in hopes that some way could be arranged for taking care of forest reserve and public domain to prevent hoppers from coming into crops from them.

IOWA - Doctor Decker stated that the campaign this year had been quite satisfactory in Iowa.

KANSAS - Doctor Kelly suggested that the use of amyl acetate, molasses, or oranges be added to the bait, which would add 50% to the efficiency in Kansas, and stated that bran and sodium arsenite would be preferable over mixed bait. Central mixing plants are not so satisfactory. Molasses is believed to be very essential in Kansas.

NEVADA - Mr. Schweis spoke of the long distances to rail terminals and the high cost of trucking bait into the counties where needed. He also suggested additional personnel be provided and expressed the opinion that more satisfactory results were secured under direct supervision of committee.

MICHIGAN - Mr. Hutson stated that they would like their allotment in the form of bran and sodium arsenite.

NEW MEXICO - Mr. Stewart stated they had some difficulty in getting projects discontinued where Federal Emergency Relief Administration labor was used. Control was fairly satisfactory.

UTAH - Doctor Henderson suggested the need of a larger personnel and that the option of getting materials at home would be an advantage. He spoke of the problem of inertia on the part of the farmers and that they did not cooperate. Doctor Henderson stressed the factors of inertia on the part of the farmers and the variability of results secured as the greatest problems.

Doctor Parker explained that the formula used this year was selected after a thorough review of literature from many states and a review of his own experience.

Doctor Annand called attention to the fact that the personnel furnished under federal funds was kept down to an absolute minimum in order to provide as large quantities of bait materials as possible, and that it was not felt, in view of the cooperative nature of the program, that extensive federal assistance in supervision should be expected.

Mr. Rohwer stated that there was undoubtedly a number of places where additional supervision was needed, indicating that it certainly was an important factor in obtaining satisfactory control and in directing a successful campaign. He pointed out, however, that this was a cooperative control campaign, where the bait was furnished by the Federal Government and the state was to use it. This fact was indicated by the appropriation language which definitely placed the responsibility for the distribution and local utilization of the bait on the state. Because of conditions in certain localities, limited aid was extended in supervising the work but no addi-

tional help in that respect should have been expected from the Federal Government. It was very definitely up to the states to furnish the personnel necessary to organize and carry on work within the state.

Doctor Henderson, of Utah, suggested that the Federal Government insist that there be greater supervision in the work, but that the states provide it and that the government not provide material unless states provide adequate personnel.

Mr. Schweis, of Nevada, agreed entirely with Mr. Rohwer and suggested that the state workers present this problem to the respective legislatures and ask for funds for this purpose.

Doctor Parker then presented the plans for fall survey of grasshopper egg deposition, reviewing in considerable detail the methods which have been developed by the laboratory of the Bureau of Entomology and Plant Quarantine, U. S. Dept. of Agriculture, at Bozeman, Mont., and utilized in 1933 in the so-called "surveyed states" as a basis for the present campaign in those areas. A mimeographed review of the method, prepared by Mr. R. L. Shotwell of the Bozeman laboratory, was distributed and questions with regard to the applicability of the method in various other areas were discussed.

Mr. L. H. Douglas, Forester, from the Office of Range Management, Denver, Colo., spoke in regard to the necessity of protecting the ranges in which hundreds of thousands of cattle and sheep graze. The Forest Service has never had money of its own for controlling grasshopper infestations and these have been increasing for the past five years. Unless some change comes the Forest Service cannot take much of a part in grasshopper control. Mr. Douglas suggested that there should be some agency studying and giving publicity to the things that are going on that permit these epidemics to get under way.

Meeting adjourned.

List of those present:

Representing the United States Department of Agriculture.

S. A. Rohwer	Bureau of Entomology & Plant Quarantine	Washington, D. C.
P. N. Annand	do	Washington, D. C.
B. M. Gaddis	do	Minneapolis, Minn.
J. R. Parker	do	Bozeman, Mont.
V. L. Wildermuth	do	Tempe, Ariz.
C. C. Wilson	do	Sacramento, Calif.
L. P. Rockwood	do	Forest Grove, Oreg.
M. P. Jones	Extension Service	Washington, D. C.
L. H. Douglas	Forest Service	Denver, Colo.

Representing the various states.

<u>State</u>	<u>Name</u>	
Arizona	E. D. Ball	State Leader
Colorado	Sam C. McCampbell	State Leader
	Geo. M. List	State Entomologist
	Max A. Sisson	Greenhouse Inspector
	Chas. R. Jones	Prof. of Entomology
	J. L. Hoerner	Asst. Prof. of Entomology
	R. W. Portman	Colorado Agr'l College
	R. G. Richmond	Office of State Entomologist
	K. W. Shanks	Assistant State Leader
Idaho	W. E. Shull	Assistant State Leader
Iowa	Geo. C. Decker	Iowa Agr'l Experiment Station
Kansas	E. G. Kelly	Extension Entomologist
Michigan	Ray Hutson	State Leader
Minnesota	A. G. Ruggles	State Leader
	T. L. Aamodt	Assistant State Entomologist
Nebraska	O. S. Bare	State Leader
	L. M. Gates	Entomologist, State Dept. of Agriculture
	Dean Edchoff	Assistant State Leader
Nevada	Geo. G. Schweis	State Leader
New Mexico	H. C. Stewart	State Extension Service
North Dakota	Fred D. Butcher	State Leader
South Dakota	A. L. Ford	State Leader

(Continued on next page)

<u>State</u>	<u>Name</u>	
Utah	W. W. Henderson	State Leader
Wisconsin	E. L. Chambers	State Leader
Wyoming	C. L. Corkins	State Leader
	F. P. Lane	County Agent Leader

State	Name	Rank
Virginia	J. P. Jones	State Engineer
Virginia	C. D. Lanning	State Engineer
Virginia	E. H. Lanning	State Engineer
Virginia	E. W. Lanning	State Engineer

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